Face Recognition Vendor Test 2002

P. Jonathon Phillips [1,2], Patrick Grother[2], Ross Micheals[2], Duane M. Blackburn[3], Elham Tabassi[2], Mike Bone[4]

[1] DARPA
3701 North Fairfax Dr.
Arlington, VA 22203

[2] National Institute of Standards and Technology
100 Bureau Drive, Stop 8940
Gaithersburg, MD 20899

[3] DoD Counterdrug Technology Development Program Office
17320 Dahlgren Rd, Code B07
Dahlgren, VA 22448

[4] NAVSEA Crane Division
300 Highway 361, Code 4041
Crane, IN 47522

Abstract

The Face Recognition Vendor Test (FRVT) 2002 is an independently administered technology evaluation of mature face recognition systems. FRVT 2002 provides performance measures for assessing the capability of face recognition systems to meet requirements for large-scale, real-world applications. Participation in FRVT 2002 was open to commercial and mature prototype systems from universities, research institutes, and companies. Ten companies submitted either commercial or prototype systems. FRVT 2002 computed performance statistics on an extremely large data set – 121,589 operational facial images of 37,437 individuals. FRVT 2002 1) characterized identification and watch list performance as a function of database size, 2) estimated the variability in performance for different groups of people, 3) characterized performance as a function of elapsed time between enrolled and new images of a person, and 4) investigated the effect of demographics on performance. FRVT 2002 showed that recognition from indoor images has made substantial progress since FRVT 2000. Demographic results show that males are easier to recognize than females and that older people are easier to recognize than younger people. FRVT 2002 also assessed the impact of three new techniques for improving face recognition: three-dimensional morphable models, normalization of similarity scores, and face recognition from video sequences. Results show that three-dimensional morphable models and normalization increase performance and that face recognition from video sequences offers only a limited increase in performance over still images. A new XML-based evaluation protocol was developed for FRVT 2002. This protocol is flexible and supports evaluations of biometrics in general.